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09/693,351	10/20/2000	Wei Ding	6601-54075	7947

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EXAMINER
NATNAEL, PAULOS M

ART UNIT	PAPER NUMBER
2614	7

DATE MAILED: 12/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/693,351	DING ET AL.
	Examiner	Art Unit
	Paulos M. Natnael	2614

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>September 22, 2003</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,4-6 and 8-16* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,4-6 and 8-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

    a)☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.

4)☐ Interview Summary (PTO-413) Paper No(s). _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2.   Claims **8-13** are rejected under 35 U.S.C. 102(e) as being anticipated by **Adams**

et al., U.S. Pat. No. 6,380,978.

Considering claim **8**, a digital video display system, comprising:

a) a navigation module operative to isolate an input video signal present in a digital

medium is met by video data buffer 42, fig.3;

b) a decoder operative to separate said input video signal into a plurality of video frames

is met by the De-interlacing stage 1, fig.4; (see also fig.5 and col. 9, lines 12+)

c) a detection module operative to detect the type of processing to be performed on said

video frame, said detection module including a table which provides the type of

processing to be performed on said video frame in response to the current video frame

position is met by Deinterlacers 70 and 80, Fig.4, which performs frame sequence detection or frequency detection, determining whether field difference processing should be performed using the FIFO/Addressing and separating 90 as storage or memory. (see Fig.4)

d) a processing module operative to provide a filtered video frame in response to information contained in said table, wherein said filtered video frame is capable of being displayed on a progressive display device is met by video output processor 60, fig.4.

Considering claim **9**, wherein said processing unit further comprises a first processing module operative to provide a digital video frame that is a concatenation of fields of an input data frame, and a second processing module operative to provide a digital video frame containing field segments having values based on adjacent field segments is met by the output of FIFOs 136, 138 140 to field assembly 150, which in turn outputs a frame 152. (see also fig.5)

Considering claim **10,** The system of Claim 8, wherein said detection module is operative to determine the type of processing to be performed on said video frame based on field data of a predetermined number of prior video frames and said video frame is met by deinterlacers 70 and 80, fig.4. (see also fig.5)

Considering claim **11**, wherein the predetermined number of prior video frames is three, is met by Fig. 5;

Considering claim **12**, Adams et al disclose the following claimed subject matter, note;

a) obtaining current video information from an input video signal, is met by video data buffer 42, fig.3;

b) a detecting the current frame delimiter from said input video signal, is met the Deinterlacing stage 1, fig.4; (see also fig.5 and col. 9, lines 12+)

c) a determining the type of processing to be performed on said current frame a corresponding data base, is met by Deinterlacers 70 and 80, Fig.4, which perform frame sequence detection and/or frequency detection, determining whether field difference processing should be performed and utilizing the FIFO/Addressing and separating circuit 90 as storage or memory. (see Fig.4)

d) generating a video frame in response to predetermined parameters in said data table, is met by video output processor 60, fig.4, which generates a video signal to be displayed on the display device;

Considering claim **13**, the processing method of Claim 12, wherein said predetermined parameters are frame dependent.

Regarding claim 13, see rejection of claim 8(c) and (d).

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4.   Claims **1,2, and 4-6** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Adams** et al., U.S. Pat. No. 6,380,978.

Considering claim **1**, Adams et al disclose the following claimed subject matter, note;

a) the claimed navigation unit operative to <u>provide</u> an input video signal <u>from a digital media element</u> is met by video data buffer 42, (fig.3).

b) a video unit operative to process said input video signal such that said input video signal <u>is converted into a filtered digital video signal that</u> can be displayed on a progressive display device, is met by met by the video processing system including the decoder 28, image Enhancement Engine 30,and display controller and frame buffer

c) the claimed a decoder operative to separate said input video signal into a plurality of

frames, each frame containing at least two fields is met by the Deinterlacing stage 1,

fig.4; (see also fig.5 and col. 9, lines 12+)

d) a video display module for processing each frame of said digital video signal, is met

by image enhancement engine 30, fig.3;

e) a processing unit operative to perform on said current frame the processing specified

by said detection unit, is met by video output processor 60, fig.4;

Except for;

f) the claimed detecting if a current frame matches an entry in a look-up table and for

specifying a first type of processing if there is a match and for specifying a second type

processing if there is not a match;

Regarding f), Adams discloses a deInterlacer stage 1 (70) which performs

progressive frame sequence detection and field difference processing, and a

deInterlacer stage 2 (80) performing vertical frequency detection, signal reversal

detection and diagonal feature detection. Adams also discloses the FIFO addressing

and sequencing 90 attached to the de-interlacer stages. Furthermore, Adams discloses

detecting current, last, and next fields and processing either field difference processing

or frequency detection (fig.7). Therefore, it would have been obvious to the skilled in

the art at the time the invention was made to modify the reference of Adams by

providing frame by frame processing instead of the field by field processing that Adams

discloses in Fig.6 and fig. 7, so that the frame by frame processing would make the processing easier and/or faster on the system controller or processor.

Considering claim **2,** wherein <u>said digital media element is a digital versatile disk (DVD) inserted into said navigation unit,</u> is met by DVD 24, Fig.1A.

Considering claim **4, t**he device of Claim 1, wherein said second type of processing comprises generating said current frame from the field data of a predetermined number of prior video frames and said frame, is met by deinterlacers 70 and 80, (fig.4). (see also Fig.5)

Considering claim **5,** the device of Claim 4, wherein said predetermined number of prior frames is three is met by Fig. 5;

Considering claim **6,** the device of Claim 2, wherein said first type of processing comprises providing either a frame that is a concatenation of said fields of an input data frame, or a frame containing field segments having values based on adjacent field segments as specified by said look-up table entry, is met by the output of FIFOs 136, 138 140 to field assembly 150, which in turn outputs a frame 152. (see also fig.5)

Considering claim **16**, the device of claim 1, wherein said detection unit is operative to

determine the type of processing to be performed on a predetermined video frame

signal based on a selection by a user of said digital video display device.

Regarding claim 16, see rejection of claim 1(f).

5.   Claims **14 and** 15 are rejected under 35 U.S.C. 103(a) as being unpatentable

over **Callahan** U.S. Pat. No. 6,380,985.

Considering claim **14**, Callahan discloses all claimed subject matter:

a) separating a video image frame into its component fields is met by step 100 , fig. 3;

b) determining which of said component fields is the first component field is met by step

102, fig.3;

d) generating a combined video image frame signal based only on said first component

field, is met by step 106, fig.3;

e) wherein each component field comprises a plurality of pixel lines, is met by FIG. 8

which illustrates "a flow diagram of the processing steps within the field-differencing

module 154 in accordance with one embodiment of the present invention. A Next array

of pixels 174, which is a subset of the Next Field 160, and a Last array of pixels 176,

which is a subset of the Last Field 162 are the inputs to a differencer 178. The Next

and Last pixel arrays 174 and 176 can be viewed as windows moving across their

respective fields. The "window" is moved from left to right and top to bottom. Each time the windows are moved, a new difference is computed. The result of the difference operation 178 is an array of differences 180." (col. 11, 27-37)

Except for;

c) discarding the second component field of said video image frame;

Regarding c), Callahan discloses steps 102/104, fig.3 where the methods of resizing by removing one field of scan lines and resizing and filtering the remaining field of scan lines are illustrated. Furthermore, Callahan teaches that "It is immaterial which field is eliminated, and either one can be discarded." (col. 4, lines 47-50) The fact that either one can be discarded is the strength/flexibility of the methods or teachings of Callahan. In other words, any one of those fields can be discarded and the processing is performed well despite the method employed. Therefore, it would be an obvious matter of design choice to modify the system of Callahan by having to discard the second component fields of each video frame, since Applicant has not disclosed that discarding the second component solves any stated problem or is for any particular purpose.

Considering claim **15**, Callahan discloses all claimed subject matter:

a) generating a pixel line having a value comprising the average each adjacent pair of said pixel lines is met by the disclosure that "The resize and filter equation [1] averages pairs of sequential lines....." (see col. 5, lines 8-10)

b) providing said generated pixel line between said <u>corresponding adjacent pair of</u> pixel

lines is met by the disclosure that "averaging two sequential lines has the effect of

"blurring" adjacent lines to compensate for missing interlaced lines of the dropped field."

(col. 5, lines 11-13).

Response to Arguments

<u>Applicant's Argument</u>

a) Adams et al does not discloses a detection unit for detecting if a current frame

matches an entry in a look-up table and for specifying a first type of processing if there

is a match and for specifying a second type processing if there is not a match;

b) Adams et al does not discloses a detection unit including a table which defines the

type of processing to be performed responsive to the current video frame position.

c) Claim 12 includes the steps of determining .... Adams et al does not disclose these

determining steps.

<u>Examiner Response</u>

a) See rejection of claim 1(f).

b) Deinterlacers 70 and 80, Fig.4 perform frame sequence detection and/or frequency

detection, determining whether field difference **processing** (which is one type of

processing) should be performed and utilizing the FIFO/Addressing and separating

circuit 90 as storage or memory. (see fig.4) Argument therefore is not persuasive. See

also rejection of claim 1(f).

c) see response in part (b).

Conclusion

6.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Paulos M. Natnael whose telephone number is (703)

305-0019. The examiner can normally be reached on 9:00am - 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, John Miller can be reached on (703) 305-4795. The fax phone number for

the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or

proceeding should be directed to the receptionist whose telephone number is (703) 308-

HELP.

PAULOS M. NATNAEL
PATENT EXAMINER

Paulos Natnael
December 12, 2003